

What is claimed is:

1. A radio network controller in an IMT-2000 asynchronous system, comprising:

5 a Node-B matching radio access system for accessing to a Node-B;

a traffic processing radio access system for performing a soft handover of radio traffic channels of the Node-B;

10 an ATM switch accessed to the traffic processing radio access system, for providing a path for communicating traffics and control data in the radio network controller, switching ATM cells, providing a path for transmitting various traffics between the radio network controllers and soft handover between the radio network controllers;

15 a network matching radio access system for accessing to the ATM switch and a core network;

a network synchronization system for generating and providing clocks needed for the radio network controller;

20 a radio network controller controlling system for performing a call processing and a network signal accessing by controlling the ATM switch; and

25 a radio access network operation & maintenance system for operating and maintaining the Node-B and the radio network controller through an 100Base-T Ethernet path and the ATM switch path.

2. The radio network controller as recited in claim 1,

wherein the Node-B and the Node-B matching radio access system are connected to each other through an E1 interface which performs a radio traffic access function.

5 3. The radio network controller as recited in claim 1, wherein the Node-B matching radio access system performs functions of converting/inverse-converting the ATM adaptation layer type, matching an E1 trunk line, converting virtual path/virtual channel and detecting abnormality in a physical
10 link layer and an inverse-multiplexing.

 4. The radio network controller as recited in claim 1, wherein the network matching radio access system is connected to the core network with an STM-1 interface and performs the
15 functions of converting/inverse-converting the ATM adaptation layer type, matching an STM-1, converting virtual path/virtual channel, detecting abnormality of a physical link layer and multiplexing/inverse-multiplexing.

20 5. The radio network controller as recited in claim 1, wherein the traffic processing radio access system performs a function of radio channel resources management between the Node-B; a function of selecting and distributing traffics and signal data; a function of power control, handover and a LVDS
25 interface; a function of processing voice and image traffic received and transmitted between a user equipment and the core network; and a function of processing data packet traffic

received and transmitted between radio network controllers.

6. The radio network controller as recited in claim 1,
wherein the network synchronization system performs a function
5 of generating and distributing system reference clocks,
receiving and distributing a Time of Date signal,
synchronizing an STM-1 extraction clock received from the core
network into a reference clock and receiving a GPS (Global
Position System) clock.

10 7. The radio network controller as recited in claim 1,
wherein the radio network controller controlling system
includes a call control processor, a signaling processor, a
maintenance processor and a radio network controller hardware
15 alarm collection device, and it performs the function of
generally controlling functions related to call process; a
function of accessing/maintaining/canceling a network signal
between the radio network controller and the core network; a
function of collecting system failure information of the
20 systems in the radio network controller and collecting
hardware alarm information; the function of receiving a
message from the radio access network operation & maintenance
system; and a function of conducting communication between the
25 processors of the systems through the Ethernet path and the
ATM switch path.

8. The radio network controller as recited in claim 1,

wherein the ATM switch performs a function of providing a path for traffic and control data between the systems of the radio network controller; a function of switching ATM cells, transmitting voice and data traffic information and control information between the Node-B and the radio network controller; the function of providing a path for transmitting traffics; and the function of soft handover between the radio network controllers.

9. The radio network controller as recited in claim 1, wherein the radio access network operation & maintenance system is connected to the systems in the radio network controller through the Ethernet and performs the function of managing the general management and maintenance of the Node-B and the radio network controller; the function of maintaining normal operation such as system loading, configuration, statistics, state and system error; and the function of operator matching.